



Installation Manual

Harley XL 04-UP

Version 2

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Introduction

This manual covers installation of the LegUp LandinGear system by Chopper Design Services. This system should only be installed by a qualified technician, or those with above average mechanical skills. If you are not SURE that you can perform this installation, please contact us and we will help you find a qualified shop to assist you.

If you have been looking for a system that will keep your feet on the pegs, this is NOT the system for you! On the other hand, if systems that will relieve you of the weight of the bike and help you avoid balance problems as you approach a stop, LegUp is what you need.

Improper installation will void your warranty, so please be very careful!

Thanks for choosing LegUp!

Warranty

Chopper Design Services warrants the LegUp system for a period of one year from date of purchase. This warranty covers replacement parts and/or manufacturer defects. Incidental damages or costs are the responsibility of the purchaser.

Defective parts are to be returned to Chopper Design at the address below. Purchaser must contact Chopper Design to receive a Return Material Authorization, prior to returning defective parts to Chopper Design.

Abuse, improper installation or use, collisions or accidents, are not covered under this warranty. Replacement parts for this type of damage are available through Chopper Design.

Users of the LegUp system agree that Chopper Design is NOT responsible for personal injuries or damage to property arising from the use of the system. While we believe this system to be safe and reliable, the user is advised that use of LegUp is done so at the users' own risk. Use of the system implies agreement to the above statements. If you can't agree with the above, Chopper Design and its dealers would be happy to refund your full purchase price, before you use the LegUp System.

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Installation Instructions

The LegUp® system has many components. Please be sure you have them all before starting your installation.

COMPONENTS:

- 1) **Control Switch Box**
- 2) **Linear Actuator**
- 3) **On-board Computer Module**
- 4) **Proximity Sensor**
- 5) **Leg Support Stand**
- 6) **Leg/Wheel System**
- 7) **Hardware Bag**
- 8) **Actuator Bracket**

If you believe you are missing any parts, please contact Chopper Design at 407-834-5007, and we will rectify the situation.

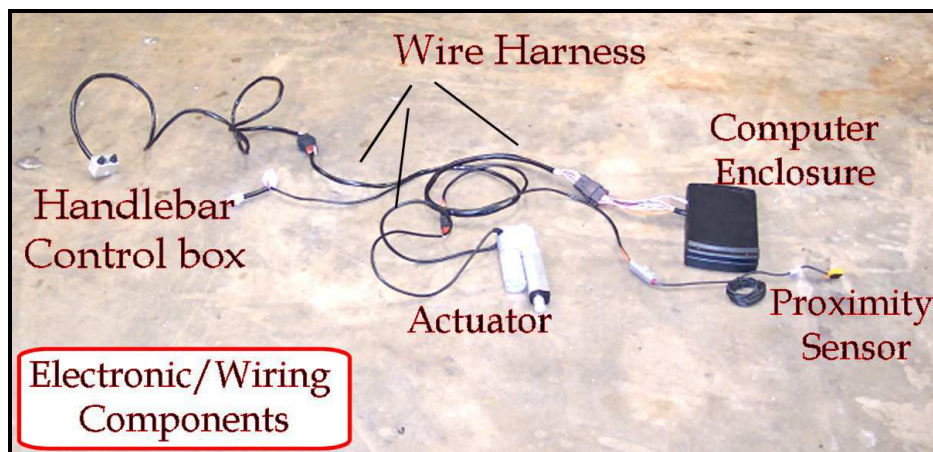


Figure 1

PREPARE FOR INSTALLATION

Place the motorcycle on an acceptable bike lift. You will need to keep the bike on its wheels for most of the installation, and jack the rear wheel off the lift for some portion of the installation. Make SURE the motorcycle is secure on the lift!

Remove the seat and both side covers.

We are now ready to begin!

RELOCATE OIL DRAIN LINE



Because of where the support plate is installed, we have to move the oil drain line to a new location. Using a clamp or a vice-grip on the oil drain line on the left side of the bike, clamp off this line, remove the hose clamp and the fitting in the end of the oil line.

Some bikes have a plastic stopper that mounts on the frame; some just have a plug in the oil line.

Insert the supplied double ended barb into the oil line, and attach the extra line (supplied) to the other end. Tighten hose clamps on both sides of the barb (Not too tight to break the plastic!)

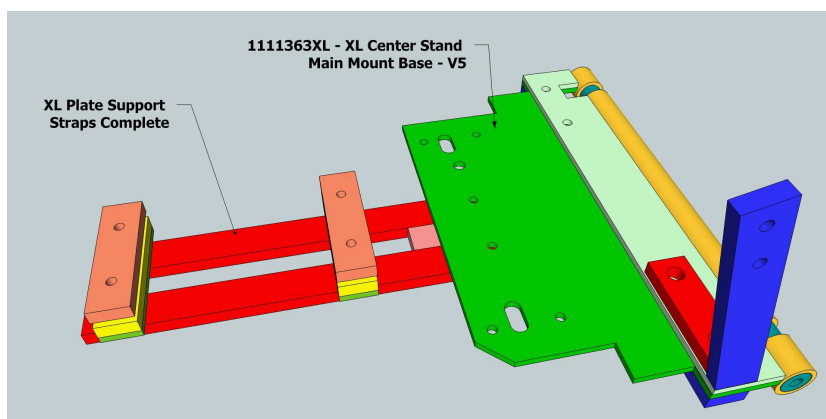
As seen to the right, trim the line so it will land forward of the kickstand bumper. This new line will be routed between the front and back attachment points later.



Once the line is trimmed, reinstall the drain plug (whichever type you have), and tighten a clamp on it. If your bike has the frame clamp, see below. If it only has a plug in the hose, leave the hose dangling for now; it will exit to the left of the mounts we are about to install.

Now let's mount the Leg Support Stand.

INSTALL LEG SUPPORT STAND



LegUp has developed a new, stronger attachment system which holds the LegUp system to the bike! This stand mounts below the transmission on the XL.

If inserted into the stand, the long stainless steel shaft with the small bolts in the end should have one of the bolts removed, and be slid out of

the pipe in the stand. Just set this aside for now.

In preparation for installing the stand, remove the bolt on the bracket that holds the rear master cylinder. This is done from the right side of the bike. It is a countersunk Torx bolt; the only bolt under this bracket.

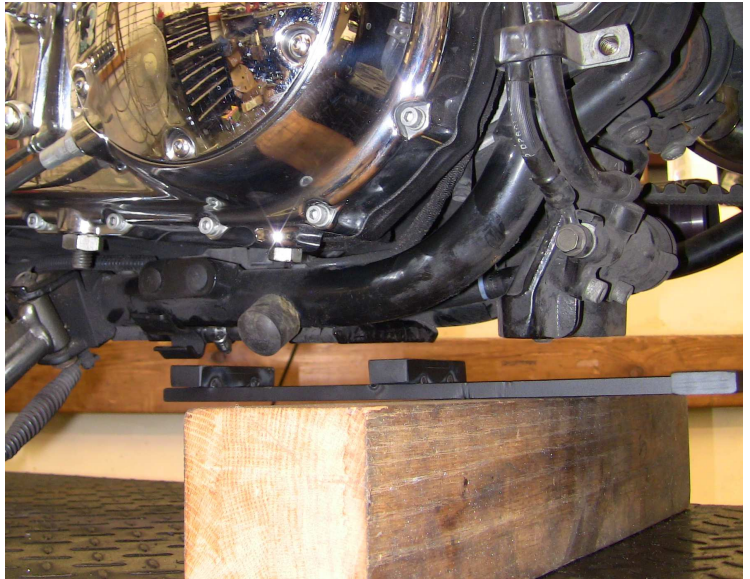
Next find the two 3/8" plates that are threaded. These plate will be placed on top of the two cross braces under the transmission. You need to be careful to make sure you can see the threaded holes in these plates, through the holes in the cross braces.



Once you have these oriented properly, find the long support bar assembly and prop it up on a 4X4 or something to support it (it gets heavy fast).

Orient it as shown with the 3/8 cross blocks toward the ceiling. These blocks will fall into the recesses in the cross braces. Run a 3/8" bolt with lock washers into the front-most holes, and start these bolts threading into the blocks ABOVE the cross member. A little Blue Loctite is in order here. It can be tricky to get this lined up (that is why we use the 4X4), so take your time here.

We recommend you get the front two bolts started (Do NOT Tighten Yet!), then support the back of the assembly, and start the back bolts in; again leave these loose



for now! Notice the extended oil line here. Yours may look different. Make sure either the frame mount or the loose line clears this bracket and is convenient for your next oil change!

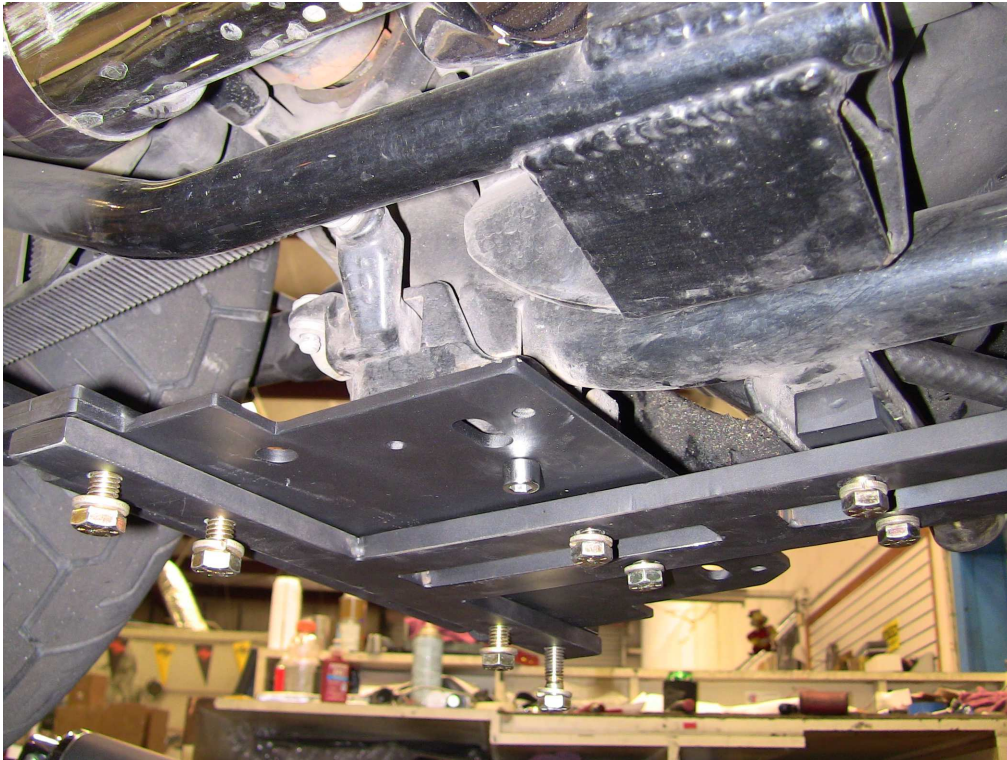
Now that you have the straps in place, we want to take the main mounting plate, and slide it on top of the rear-most part of the straps you just

installed.

You will notice that this plate has a pipe welded on the rear of it. This Pipe is offset to one side of the plate, and that offset MUST be on the high side of the plate as shown at right.

Once this plate is placed on the straps, you can start the two 5/16" bolts with lock washers (closest to the front) into the plate through the straps, as well as the four 3/8" bolts with lock washers (closest to the back). Notice one of the bolts is much longer. This one needs to be in the left rear corner; you will find out why soon.

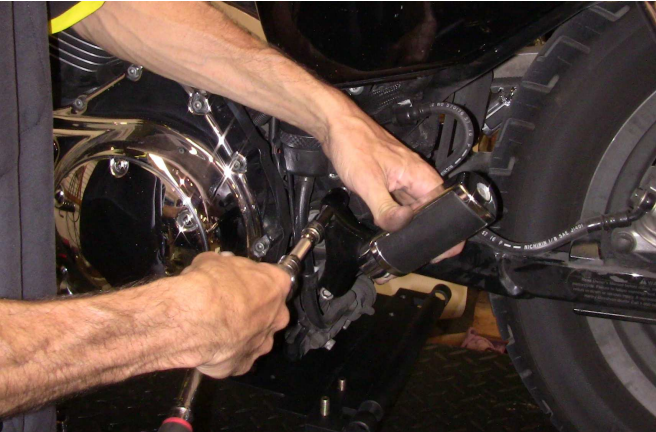




The shot above shows the six bolts just mentioned as well as the chrome Allen bolt, started into the threads in the master cylinder mounting plate; this replaces the Torx bolt you removed earlier.

Everything should still be loose, and every bolt should have Loctite on it before being inserted. Next we mount the Actuator Bracket, and then all fasteners are tightened in a specific order.

ACTUATOR BRACKET



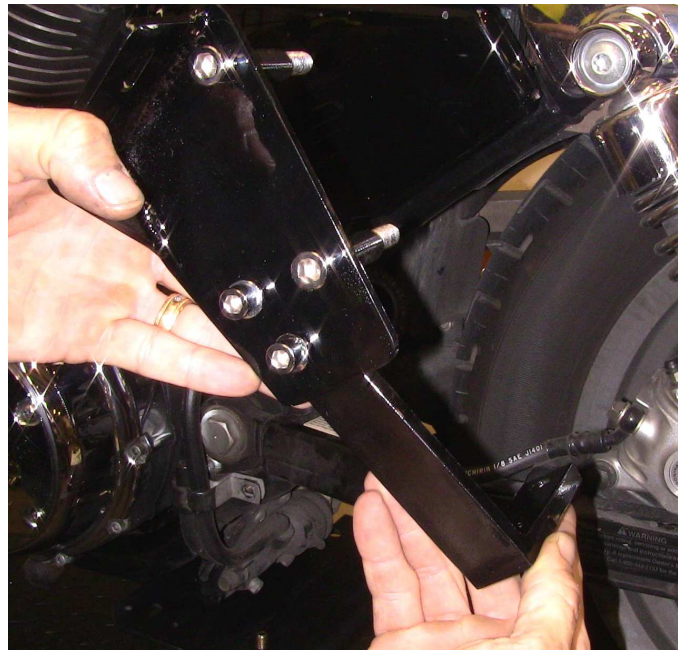
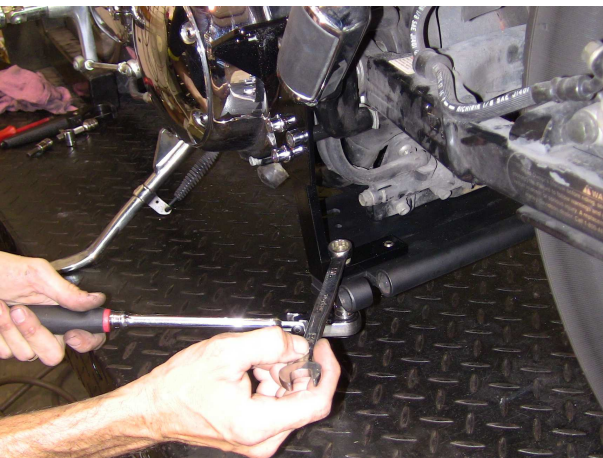
The actuator bracket mounts to the vehicle on the left side. You must first remove the left passenger foot peg; set the bolts aside as we are replacing them! Two Allen bolts hold the foot peg mount and peg to the bike.

NOTE: if you don't have rear foot-peg mounts, you will need 3/4" long spacers. See below!

Find the upper actuator bracket (shown below). It should have the two Allen bolts with lock washers installed loosely to the 90 degree bracket at the bottom. Find the long 3/8" Chrome Allen bolts and two spacers. Run the bolts through the actuator bracket, then the spacers, into the foot peg support, and back onto the bike (Loctite please!). ***(NOTE: If you didn't have rear pegs, you need to add a 3/4" spacer behind the first spacers. If you did not get them, call us and we will send you a pair!)***

You will need to line up the two holes on the bottom of the 'L' bracket with the bolts on the plate (remember that long bolt?). It may require a bit of wiggling getting all this to line up, but once everything is in place, final tighten the two bolts that run through the foot peg mount (all other bolts underneath and on this mount should still be loose).

The next step is to put a lock washer and nut on the long bolt that is on the back left corner of the plate (left). First tighten this bolt

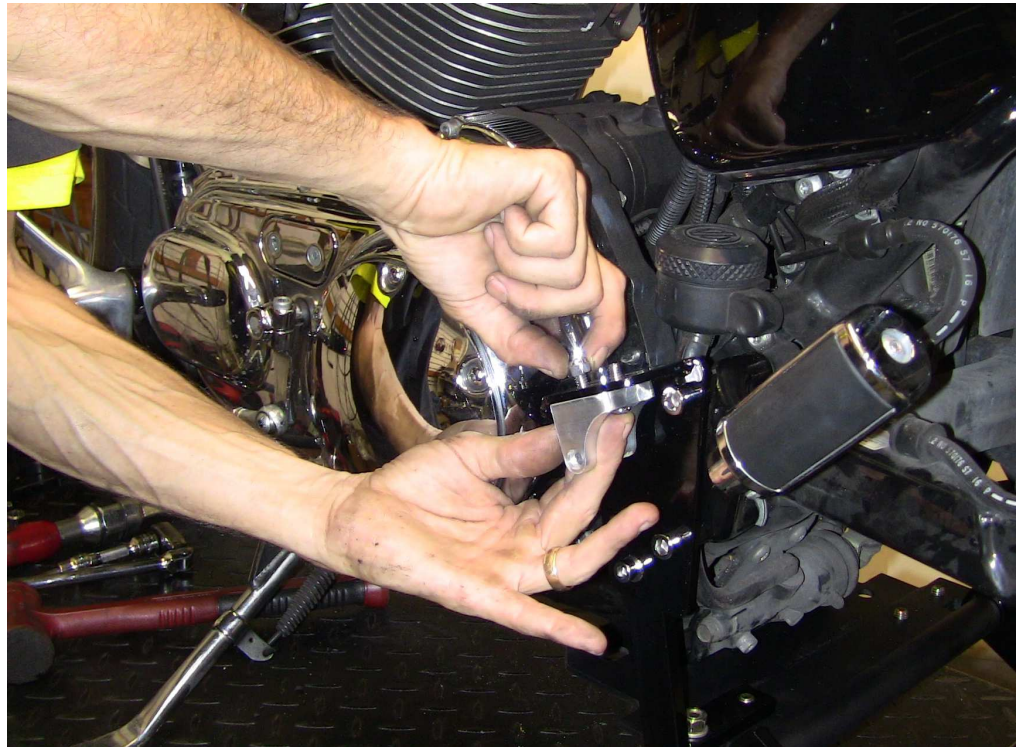


through the plate completely, then put the nut & washer on and tighten them together.

The next bolts to tighten are the two Allen bolts with washers on the face of the actuator bracket. Then tighten all the bolts on the bottom of the plate; eight altogether. Give a tug on the assembly; it should be very tight to the bike.

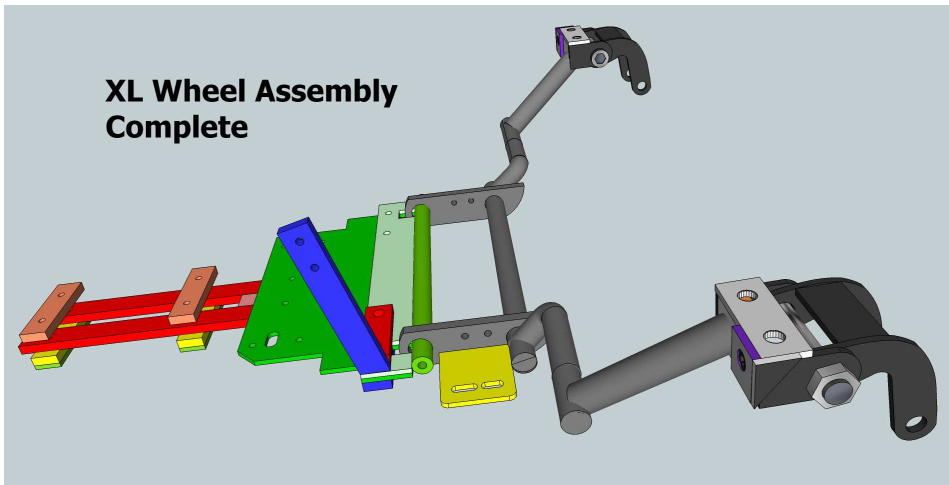
Next we need to mount the actuator mount, to the actuator bracket. Find two 1/4-20 chrome button head screws and lock nuts, and start them through the aluminum bracket (countersunk hole out), then through the slots on the horizontal bracket of the actuator bracket as seen here.

Snug these bolt, but do not final tighten them. You may have to adjust them forward, back, left or right later.



Now we can mount the Leg/Wheel Assembly!

LEG/WHEEL ASSEMBLY



If not completed already, first remove the bolts from the stainless steel rod in preparation for mounting the legs. With help from an assistant, slide the Leg/Wheel Assembly around the rear tire (careful of the finish!), and align the Leg Mounting Points with the slots in the Support Stand. If available a very

small amount of 'Never Seize' on the shaft is in order here. Then start the stainless steel shaft in from one side through the tube on the support stand, and through the first leg mounting point and its bushing. The fit is tight, so take your time. Carefully work the shaft through the tube and the second leg mounting point. The shaft is inserted properly when it is inserted just past (approximately 1/8") the end of the tube. This distance should be about the same on both sides, but it is not critical as long as both sides are inside the tube. If you need to, you can tap lightly on the shaft (brass drift is preferred here). Once the shaft is in place, use a small amount of blue thread locker and install the (2) chrome bolts and washers on the end of the shaft to finish it off.

Make sure the legs move up and down without any binding!



MOUNT ACTUATOR



Before we can mount the actuator we need to Remove the axles (if installed) from both the upper and lower actuator mounts (aluminum blocks - one on the legs and one on the upper actuator mount), and set them aside. Align the actuator, motor side (big end) down as shown, with the hole in the upper actuator mount. Reinstall the axle bolt on the upper actuator mount first. Use just a touch of thread locker on the threads.

With someone supporting the wheel assembly, raise the legs until the bottom hole

in the actuator is aligned with the lower actuator mount (which uses bolts from underneath to hold it on... these bolts should be snug, but can be loosened later if adjustment is required!). On the XL, this bracket should be as far back as possible, so the actuator does not hit the peg when the wheels are up! Install the axle in this mount as you did on top one. (Some wiggling may be required!).

NOTE: If the actuator is too short to reach the other mount you may have to lengthen it using the system. Temporarily plug the wiring harness into the bike, and follow the direction for 'Maintenance Mode' in the 'Initial System Test' section below. Using what would be the left button on the switch box, just add a small amount of length to the actuator so you can align the mounts, then turn the bike back off.



At this point you need to make sure that the mounts are in alignment and the actuator is not in any sort of bind! The mounts should be tightened at the factory. If need be, readjust the actuator mounts in whatever position is the best with the actuator in its mounts. If needed, mark the mounts with a Sharpie, remove the actuator, tighten the mounts and reinstall the actuator. Make sure the axles slide in easily and there is no bind at all. **MAKE SURE** there is no bind or the actuator will fail prematurely!

CONTROL SWITCH BOX

NOTE: If you have a LITE System, Please refer to the addendum at the end of this manual, for differences between a Regular and LITE system. The Proximity sensor is NOT part of the LITE system! Ignore any references to the Proximity Sensor, its' mount & wiring.

Disassemble the 8-pin connector attached to the switch housing. The box mounts with a single bolt and a spacer.

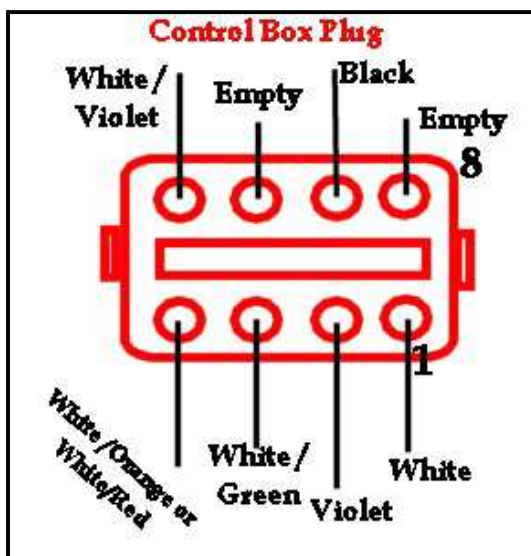
Remove the bolt on top of the left switch housing and set it aside; it is not re-used.

Find the chrome bolt and spacer, run the bolt through the switch box, into the spacer and back into the stock left switch housing.

Snug this bolt up, while aligning the box square with the switch housing below it.

Now we can run the wires from the switch housing down the handlebars, through the hole in the middle of the top triple-tree, and toward the front of the tank. Use wire ties to attach the wires to the bars.

We need to run these wires under the tank area to get to the area under the left side cover. Use wire ties to run the wires down the bars.



Once you have the wires under the side cover area, pull any extra slack out and re-assemble the plug from the switchbox. Be careful to assemble this according to the picture (left).

WIRING HARNESS

NOTE: If you have a LITE System, Please refer to the addendum at the end of this manual, for differences between a Regular and LITE Harness!



The next step is to route the wiring harness. The harness and the plugs are routed mostly under the left side cover. There is little room under the seat on this bike.

Remove the left side cover. The 12-pin plug starts out over the left fender strut (where a saddlebag or fork bag needs to be!). The other wires and plugs can run along the frame rail under the seat (a better picture can be found in the wire routing section, later).

Power for the system is supplied by using the 4-pin plug on the harness and mating it to the accessory connector on the bike. This plug can be found mounted in front of the battery, and usually has a rubber plug inserted into it. Connect these plugs temporarily (you will likely have to remove the plug on the bike from its' mounting point to do this!).

The 8-pin connector from the control box, should be at the front of the seat area already; mate this to its partner on the harness. Don't worry about where the plugs are laying for now, we just want connections at this point. Also plug in the Proximity sensor wire (3-pin attached to a small bracket with a yellow device on it, let it dangle for now!) and the wire from the actuator (6-pin).

You can also plug the computer (12-pin) into its mating plug and lay it on the seat or the fender for now! We next test the system; the wiring gets cleaned up and tied down later.

INITIAL SYSTEM TEST

NOTE: If you have a LITE System, Please refer to the addendum at the end of this manual, for differences between a Regular and LITE system. Skip this section if you have a LITE System.

Turn your key switch on. At this point, have a look at the yellow proximity sensor (it should be dangling near the front forks somewhere). The **RED LED** (ON The Sensor) ***Should Not Be Lit***. Take a metal object (screwdriver, wrench, etc.) and hold it on the flat face of the sensor (it has a circle embossed in it). The LED should light up, and go out when you move the metal away. If not, check all your connections.

Next, press the rightmost pushbutton and hold it for at least 3 seconds. One or both LEDs on the switch panel should light up; we really don't care which at this point. If this occurs, you are doing well. If both LEDs are flashing (maintenance mode) you can skip the next step which is to press both buttons until both LEDs flash.

Next press both buttons for just an instant! If everything is working, the bottom or yellow LED on the switch box should flash, and the top LED should be out. The next step, and be careful here, is to touch the left button for a split second. The legs should move down just a bit. Touch the right button, and they should move up. With the bike on the lift, ***you have to be very careful here!***

If all of the above has occurred, raise the legs. Press and hold the right button until it stops, and turn the ignition switch off!

The test is now complete. Let's move on to mounting the Proximity Sensor.

MOUNT PROXIMITY SWITCH

NOTE: *If you have a LITE System, Please refer to the addendum at the end of this manual, for differences between a Regular and LITE system. Skip this section if you have a LITE System.*



This step is crucial!! Understand it before starting. The proximity sensor tells the system how fast the bike is traveling. The proximity sensor mounts on a bracket that attaches to the lower left shock bolt. The sensor will ultimately be just 5MM from the rotor bolts.

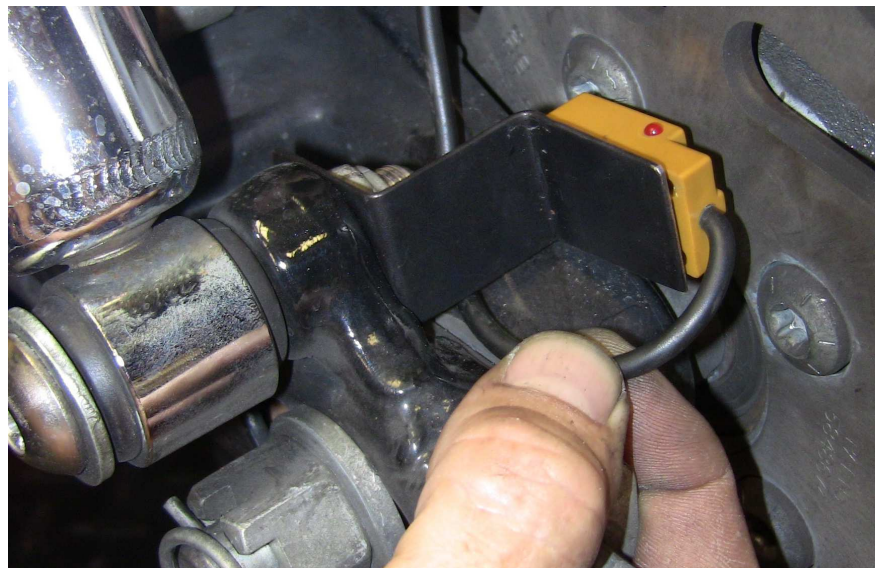
Remove the nut from the lower left shock bolt. Slide the bracket onto the bolt as shown, and then re-install the nut, snug for now. Not that the red LED is up, and the wire exits to the rear.

The idea here is that the yellow sensor will line up with the rotor

bolts as they pass by, and let the computer know how fast the wheel is spinning.

With the rear wheel off the ground, we can make the rotor bolts pass the sensor, to test it and its placement.

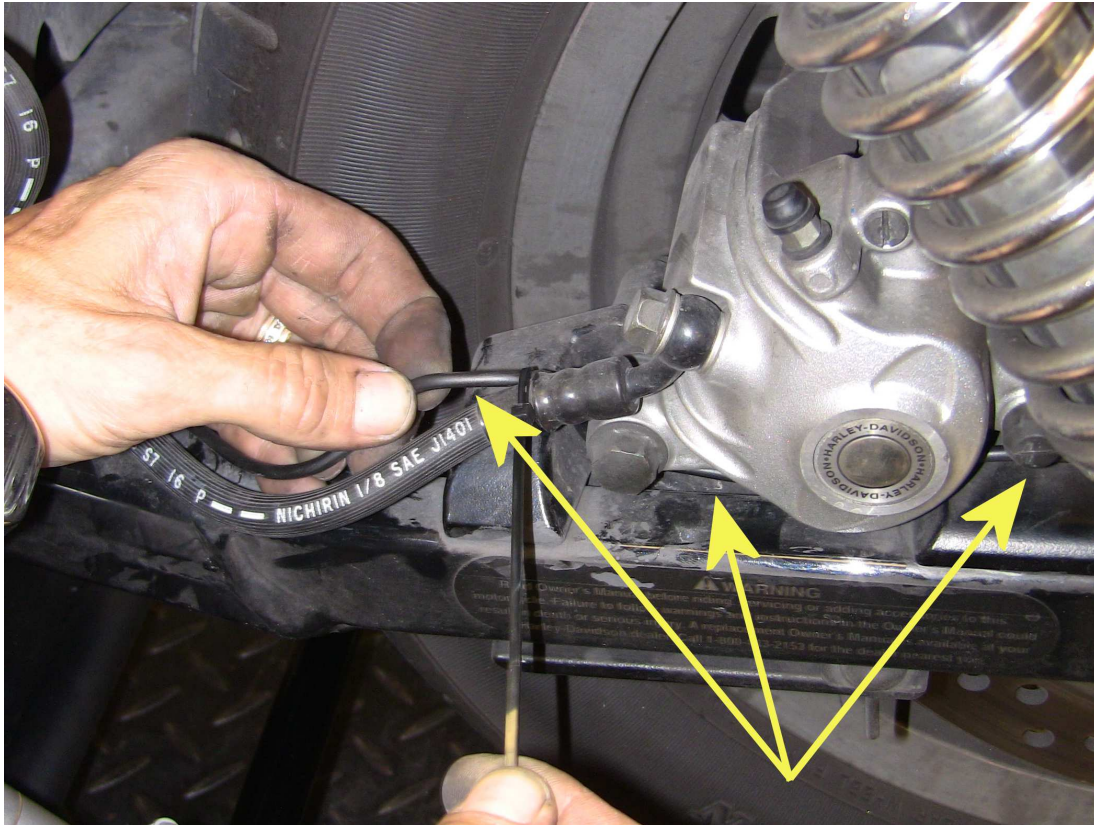
Turn the ignition switch to the on position. The LED may or may not be on. What we are looking for here is for the LED to light as a rotor bolt passes close to the sensor and to go out as the bolt passes by. Have someone watch the LED as you roll the wheel back and forth making the bolts pass close to the sensor.



Once you feel you have the right place, tighten the shock nut down securely, and test again!

If this is not happening, you may need to get the sensor a bit closer to the bolts (5MM is a very small distance!). If you have to move the sensor closer, you may have to bend or adjust the angle of the bracket.

No matter what you need to do, you **MUST** make sure that as the wheel turns, the light works as described above! The automatic retraction of the legs as well as their deployment **RELIES** on this sensor being placed perfectly!



Once satisfied, we need to route the wire properly. The picture here shows how the wire runs under the mount you just installed, under the brake caliper, then up between the caliper and its' mount.

As the wire emerges, tie it down to the brake line as shown. Route the wire

along the brake line and up into the left side cover area. Wire ties and self-adhesive wire holders are provided.

Next we will work on routing the wire harness. Instructions are below.

WIRE ROUTING

NOTE: If you have a LITE System, Please refer to the addendum at the end of this manual, for differences between a Regular and LITE system. The Proximity sensor is NOT part of the LITE system!



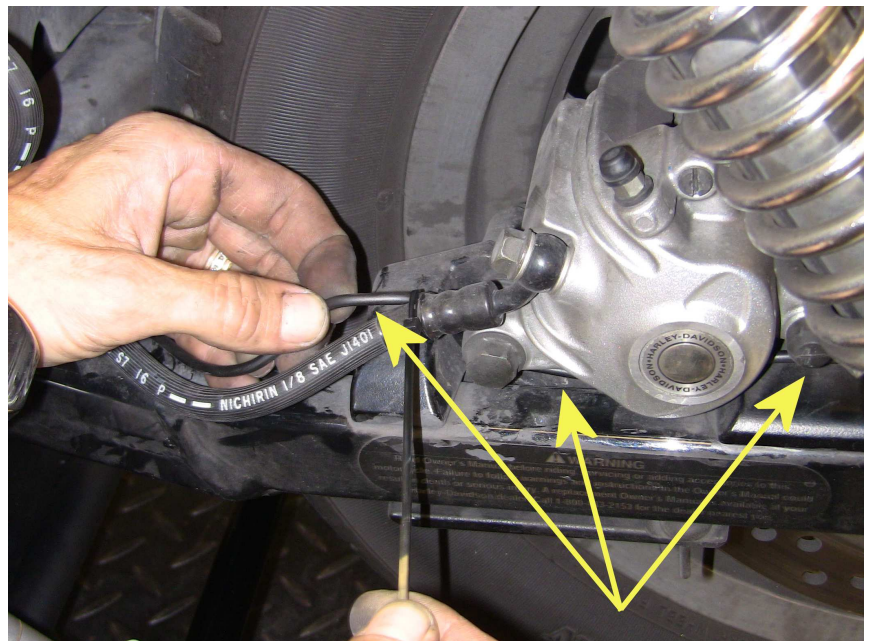
On the Sportster, you will need to have either saddlebags, or some sort of bag mounted on the left side of the bike to hold the computer. On this bike, we have used a Fork Bag, and attached it to the fender strut for this purpose. There is very little space to run the wires on this bike, so take your time and look at our methodology.

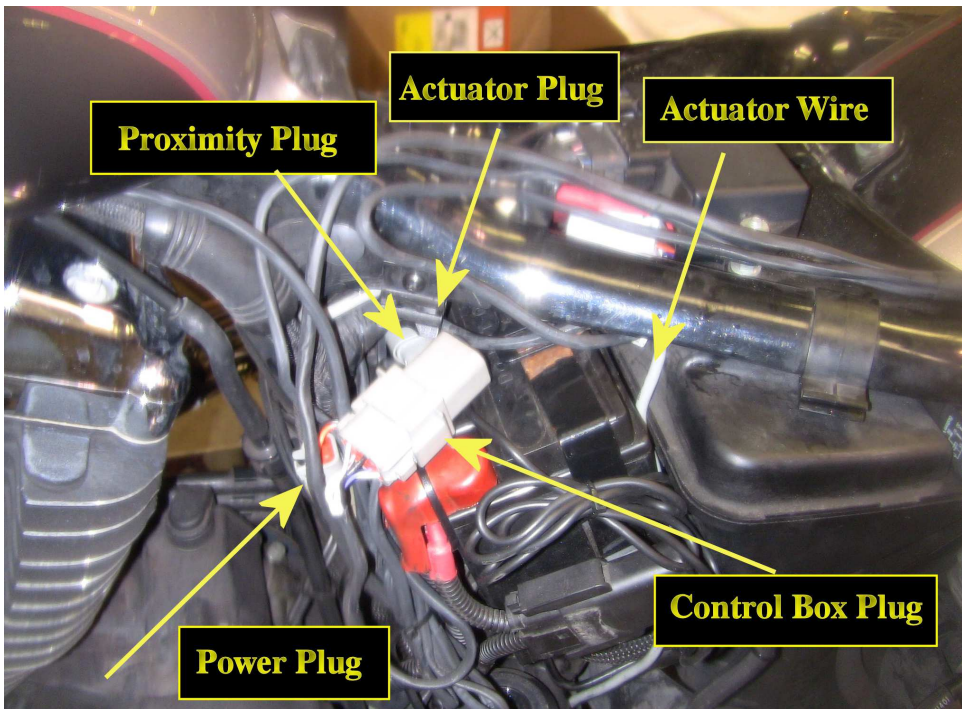
In this picture, you can see us routing the wire with the 12-pin plug on it (Right side), down the fender strut, and the other wires under the edge of

the seat area and down toward the side cover area (Left side).

Guide the wires from the Proximity bracket up the brake line, and attach it to the line with wire ties. Once it is close to the bottom of the side cover area, it can be separated from the brake line as shown below.

We need to run the wires from the actuator, up into the side cover area as well. We will cover this and plug placement on the next page.





Here we try to show you where the plugs get tucked in so the side cover can be re-installed.

The plug for the actuator gets its wire run behind the battery (light grey wire) then the plug is tucked in on top of the battery toward the front (not visible here).

The Proximity plug, which has its wires already routed along the brake line, gets tucked up above the battery. You can see the

excess wire tied up above the Maxi-fuse. The power plug gets mounted back onto the post it came off of. The control box plug needs to be placed right on top of the edge of the battery so the cover will go on again. Try the cover on and off as you tie up all the loose wires. Make sure nothing gets in the way of the cover. Also make sure no wires are strained or will rub anything.

Put the cover back on and we can test to make sure the actuator wires are fine. With help, support the bike and turn on the LegUp system (see owner's manual). It should start in maintenance mode, but if it doesn't, please enter maintenance mode (again in the manual). Now carefully, lower and raise the legs and make sure the wires are not binding and that they clear everything! Raise the legs most of the way and turn off the bike. Now we are ready to button everything up.

Last thing to do is to stash the computer. We used a fork bag on this bike, you may have saddlebags. This inexpensive fork bag is attached to the bike with wire ties.

The plug and the computer go inside the bag, and the system is protected well enough from the elements. If you are concerned, you can wrap the computer in a plastic bag. It generates no heat, and would live happily in such a bag!



Almost Done!

FINISHING UP

Now it is time to recheck everything! Check that all bolts that were loosened are tight. Reinstall the side cover and the bags; making sure that everything is clear. Reinstall the seat making sure all your wires are routed neatly, tied off nicely and don't interfere with the seat installation.

Now you can dial in the actuator, and adjust the wheels.

ACTUATOR ADJUSTMENT (Maintenance Mode)

NOTE: If you have a LITE System, Please refer to the addendum at the end of this manual, for differences between a Regular and LITE system. Skip this section if you have a LITE System.

Once you have the bike on the ground, turn the ignition on and start the LegUp System (hold right button for 3 seconds). The system should enter maintenance mode automatically (Both LEDs Flash), but if it does not, enter maintenance mode manually (Both buttons for 3 seconds). With a helper nearby, straddle the bike, and hold it level. Hit both buttons for an instant to get the system in the "DOWN" setting mode (yellow LED flashing). Straddle the bike so your weight is NOT on the seat, hit and hold the left button until the wheels contact the ground and stop. Make sure that the suspension raises a bit as you do this. If not, the legs are not going down far enough, the bottom actuator mount may need to be moved left or right a bit to get the wheels all the way down (Contact LegUp for assistance if you need help with this). Once these wheels are down as described above, try to put both feet on the floorboards. The bike should be reasonably stable and you should be able to lean a bit in both directions without the bike falling over. The DOWN stop is now set!

Hit both buttons for a moment to get into the "UP" stop mode (top LED blinking).

Carefully use the right button to raise the legs. Have your helper let you know as you approach anything that may come in contact with the wheels or the legs. You also need to make sure the system clears pipes, clamps etc. If you can't make the clearance to allow the legs to come up all the way, you can set the up stop just below whatever is interfering (if not, you will likely set up a permanent rattle!) Hit both buttons when complete, and you will be done with these adjustment.

Now press the left button and the legs should lower. Hit it again and the legs should retract. If you are satisfied with these limits, you have successfully installed the LegUp System. Time for a test ride!

TEST RIDE

NOTE: If you have a LITE System, Please refer to the addendum at the end of this manual, for differences between a Regular and LITE system. Deployment and Retraction of the wheels is COMPLETELY MANUAL if you have a LITE System.

Get the bike to a clear paved mostly level area where you can test ride it. Start the bike, turn on the LegUp system and lower the legs. The first test should be done in a straight line. Put the bike in gear and slowly accelerate. You may notice that the bike tends to want to steer a small amount left or right. This is normal unless it is severe. Once underway, the top LED should flash at around 6 MPH, meaning the legs are retracting. You can lean on one wheel or the other as you leave to reduce any darting the system may be giving you.

Assuming the legs are retracted, you should try to deploy the wheels. As you come to a stop, the Green LED should be on. As you slow down (**almost stopped**), the Yellow LED should illuminate at the proper speed. Once it does (sometimes hard to see), hit the left button and put your feet down near the ground. The top LED should flash and you should soon feel the wheels deploying underneath you! Make sure you are ready to balance the bike! Uneven ground or lack of familiarity could make the bike want to lean one way or the other. With your feet ready to balance the bike, this should be no big deal. The slower you are going when deploying the wheels, the smoother the transition will be from wheels up to wheels down. Practice these maneuvers until you are comfortable with the wheel adjustments and the system operation.

SEMI-AUTOMATIC DEPLOYMENT: Another way to deploy the legs is to hit the left button while you are running at any speed over 10MPH with the wheels up. The bottom or yellow LED should start to flash. When you slow down to around 8MPH the wheels will start to deploy (see the red/green flash on top LED). Again prepare to put your feet down.

NOTE: The bottom LED Should not be LIT if the legs are up over 10MPH! In the event it is, the wheels will deploy instantly if you try to set them as above; this is dangerous! You MUST re-visit the sections on testing the proximity sensor. You should always be aware that this light should NOT be on if you are traveling at speed, and 'Arming' the system for deployment should only be attempted if the lower LED is Not Lit! Please see the User Manual for more information on Proximity Sensor Failure!

The next thing to try is to make a turn right after a dead stop with the wheels down. As soon as you start the bike moving, try a left or right turn immediately by leaning into that turn. You may find that you have to nudge the bike a little bit more than usual to get the bike to lean, and you won't be able to lean as far as you can with the wheels up. Once into the turn, accelerating will raise the wheels. You will hardly notice the wheels coming up unless you see the top LED blinking!

The next thing to try is slow speed maneuvering with the wheels lowered. In a straight line on level ground, you should be able to keep your feet on the floorboards and move the bike forward at very slow speeds (simulate stop and go traffic). I like keeping my feet near the ground during these maneuvers! You can also try small 'Trike' turns; keeping the bike upright at slow speed and making turns as you would in a parking lot. Be aware that if you get over the speed that the legs come up, they will!!! Another thing I like to do is donuts. Start out slow, lean the bike left or right, and make circles at very slow speeds (throttle on, rear brake on, clutch slipping... you know like the cops do!). This helps you get familiar with the wheels being on the springs and allowing a lean angle! Practice, practice, practice!! Enjoy your LegUp System!

LEGUP LITE - ADDENDUM

If you have a Lite System, there are a few differences in the wiring compared to our Regular system.

The plugs and their locations don't change at all! Instead of plugging in the computer to the twelve pin plug, the Relay-Pack gets plugged into this plug. The Relay-Pack will be attached with Velcro as the computer would have been in the same location.

On the LITE system there is no proximity sensor, so ignore the testing and mounting of this sensor, and realize that the three pin plug will be left without a mating connector. We keep this plug in the wiring harness in case you upgrade to a regular system in the future.

Using Your Lite System:

Unlike our Regular System, you don't turn the **LITE** system on, or adjust the legs as described in the '**Maintenance Mode**' section of the manual. When you turn your bike on, the LITE system is ready to go! Press and hold the left button to lower the wheels, press and hold the right button to raise them. No lights will flash; it is up to you to control the system manually!

Please use EXTREME Caution when using the LITE System! Keeping the wheels lowered at speeds over 9MPH can be dangerous. Since the system is manual, please don't allow its' operation to distract you from controlling the vehicle!

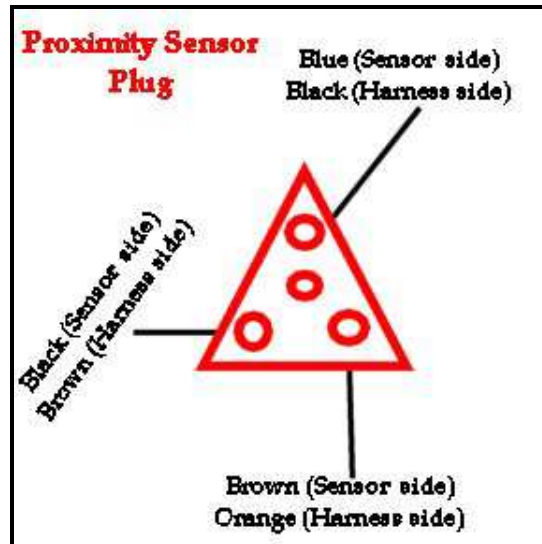
Upgrading Your LITE System:

If you have a LITE System and have chosen to upgrade it to the regular system, there are just a few things you need to do. Unplug the Relay-Pack, and plug the computer in where the Relay-Pack was attached. Run the wire for the proximity bracket and plug it in, test it, and mount it, as described in the '**MOUNT PROXIMITY SWITCH**' section of this manual.

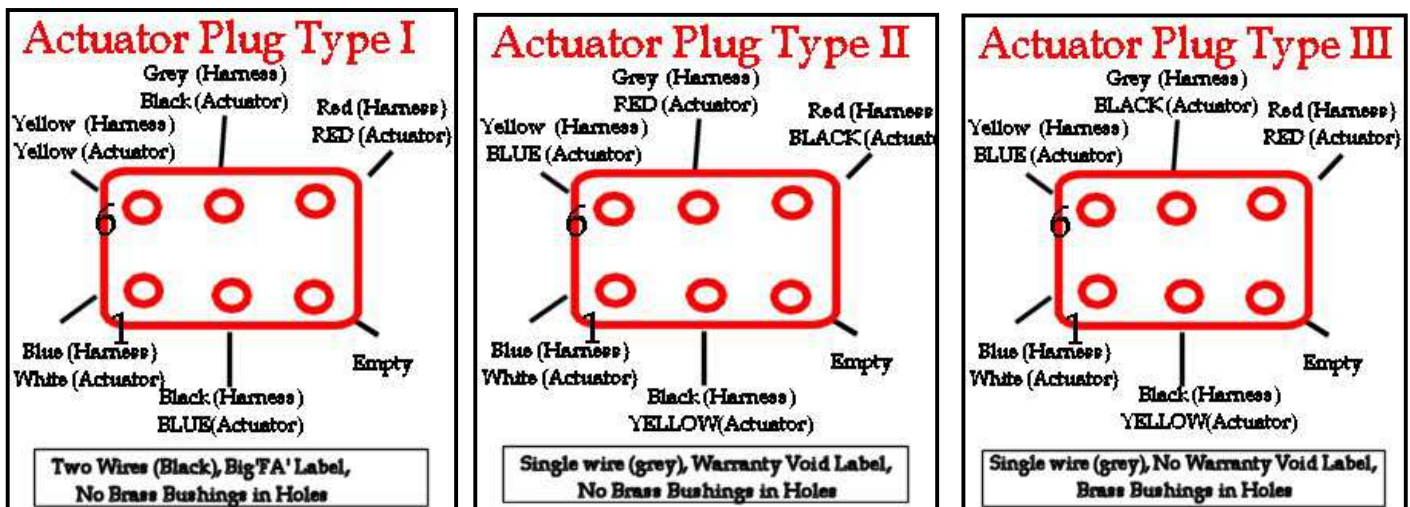
Once the new pieces are attached and plugged in, refer to '**ACTUATOR ADJUSTMENT (Maintenance Mode)**', earlier in this manual to set the lower and upper stops for the computer.

That's all it takes!

ILLUSTRATIONS

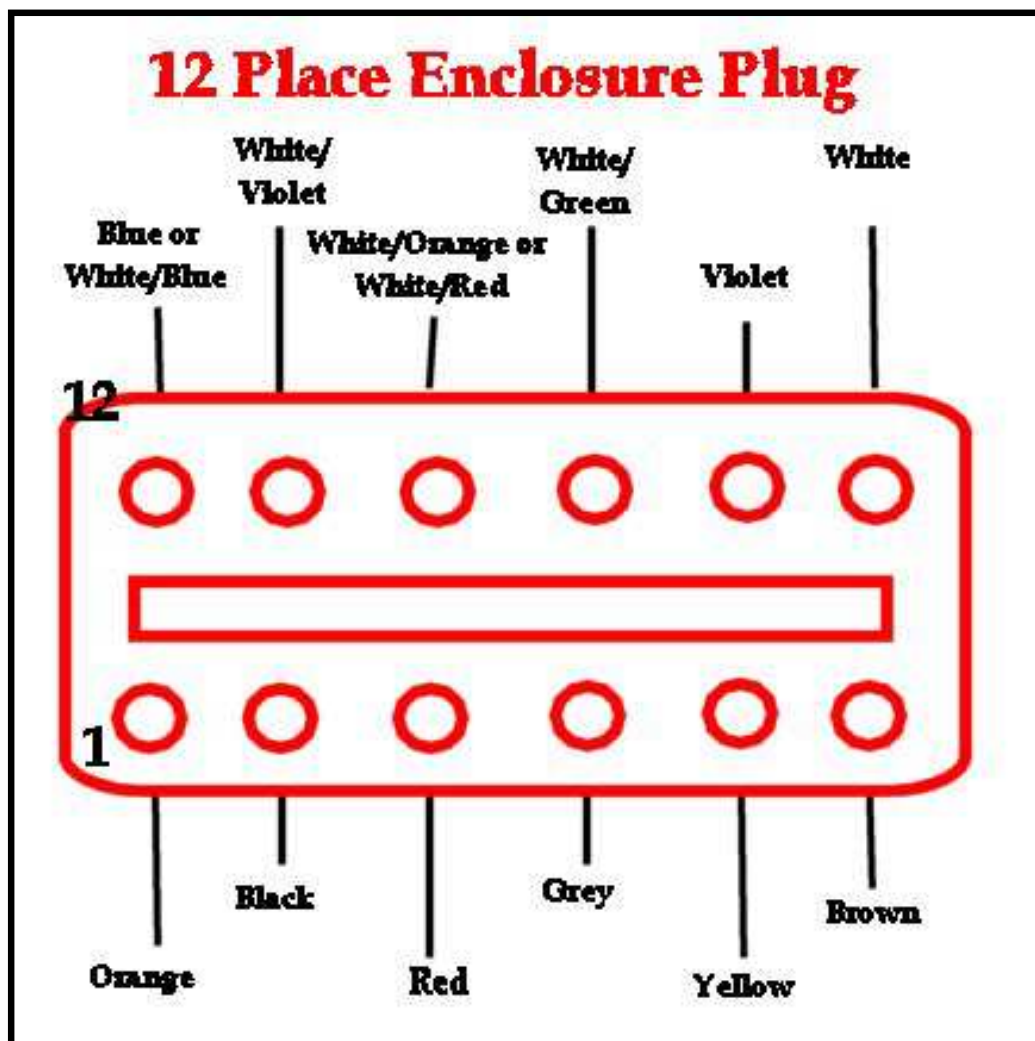


Wiring 1



There are three different types of actuators with three different wiring configurations. Refer to the notes at the bottom of the pictures above so you can match your actuator with its wiring scheme!

Wiring 2



Wiring 3

Parts List

- (1) 3/8-16 X 1½” Cad Bolt w Split Washer & Nut
- (1) 3/8-16 X 1¼” Cad Bolt with Split Washer
- (2) 3/8-16 X 1” Cad Bolt with Split Washer
- (4) 5/16-18 X 1 ½” Cad Bolt with Split Washer
- (2) 5/16-18 X ¾” Cad Bolt with Split Washer
- (2) 3/8-16 X 3” Chrome Hex Bolt
- (2) 5/16-18 X ¾” Chrome Allen Bolt w Split Washers
- (1) 5/16 – 18 X 1” Chrome Bolt
- (2) 3/8” ID X ½” OD X 1.75” Spacers (We Cut!)
- (2) 3/8” ID X ½” OD X .75” Spacers (We cut if no rear pegs)
- (1) Foot 3/8” Hose
- (1) Double Barb Fitting

Wire Ties & Self Adhesive Straps